

Residential Tap Water Monitoring of Disinfectant Byproducts to Assess Human Health Risk
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Disinfectant byproducts (DBPs) are commonly present in the community drinking water systems worldwide. Some of the DBPs are endocrine disruptors and believed to cause small for gestation age, preterm delivery, low birth weight and pubertal delay. The oral ingestion of drinking water is the primary exposure route for these chemicals in humans. Traditionally, epidemiologists rely on the indirect methods of exposure assessment (data supplied by water suppliers, exposure modeling, questionnaire etc.) to determine chronic health risk in humans. These methods are limited in scope because of inherent temporal-spatial variability, mixture interactions, and characteristics of water distribution networks. Therefore, we used a direct approach of collecting tap water samples from the residents to measure regulated DBPs (4-Trihalomethanes and 5-Haloacetic Acids) in Indianapolis Community Water System (Indy CWS). The ten residential sites are identified to capture the large part of Indy CWS. We collected samples on weekly, biweekly, and monthly basis during the May-July period. The samples were tested in a certified laboratory using EPA recommended methods. The measured concentrations of DBPs were above the permissible limits and show high temporal variability. The exposure data from this study will be used to estimate community exposure and their association with health outcomes. Currently, this work is in-progress and the results from the study will be discussed in the meeting.

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